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ABSTRACT

The role of government in curriculum development and how priorities among various types of curriculum and related efforts should be set is discussed. It is argued that federal involvement in curriculum is necessary as a part of general commitment to educational reform and renewal. It is suggested that other major forces in curriculum development, such as the publishing industry are conservative rather than reform-oriented. It is further argued that curriculum development plays a critical linking role between theoretically oriented research and educational practice. A general framework is presented in which curriculum needs, as assessed by various constituencies, together with the current state of theory and practice in a given domain determine what kinds of curriculum development and related activities should be given priority in funding. Applications of this framework to curriculum priority setting are discussed using basic skills development as the exemplary domain. (Author/JD)

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Reflections on Curriculum Policy

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ABSTRACT

This paper addresses two questions: (1) whether the federal government should play an active role in curriculum development; (2) how priorities among various types of curriculum and curriculum-related efforts should be set.

With respect to the first question, it is argued that federal involvement in curriculum is necessary as part of a general commitment to educational reform and renewal. It is suggested that other major forces in curriculum development, such as publishers, are essentially conservative rather than reform oriented; and that locally initiated efforts at curriculum development are not often self-sustaining and may not, without outside support, have sufficient resources of time and expertise to curricula that are significantly different from those of the past. It is further argued that curriculum development plays a critical linking role between theoretically oriented research and educational practice, and thus deserves strong support from an agency committed to developing a scientific base for educational reform.

With respect to the second question, a general framework is presented in which curriculum needs, as assessed by various constituencies, together with the current state of theory and practice in a given domain determine what kinds of curriculum development and related activities should be given priority in funding. Four states of knowledge and practice are identified, each suggesting a particular form of research and development activity. These activities include (a) work on dissemination and implementation of reforms; (b) development of "full" curriculum programs; (c) development and experimental classroom testing of modular and prototypical instructional units; and (d) basic research including laboratory instructional experiments. Applications of this framework to curriculum priority setting are discussed using basic skills development as the exemplary domain.

I shall attempt to respond in this brief essay to two broad questions raised by NIE's Curriculum Development Task Force. First, should the federal government, and NIE in particular, engage in curriculum development and related activities at all? Second, if federal involvement is justified, how are priorities for particular types of curriculum-related activities to be set?

The Case for Federal Involvement

I shall argue, first, that the federal government should play an active role in curriculum development and related activities in education. I begin with an assumption that there are important aspects of our educational process that need reform. If not, if we were fully satisfied with our educational system as it now exists, there would be no task force on curriculum, and very likely there would be no NIE. I assume further that curriculum is a major vehicle for bringing about educational reform based on scientific knowledge and that forces outside the federal government (and a few foundations) are essentially conservative rather than reform oriented. Let me elaborate on each of these latter points.

Curriculum as the link between research and school change

NIE's charge is to provide the best possible scientific basis for educational reform. Curriculum development, appropriately linked with other forms of educational research and development, is one of the important vehicles for metting this charge. Let us assume that various kinds of research activities may provide knowledge that suggests directions and provides the groundwork for important

educational reform. How is this knowledge to be brought to bear on the actual practice of education? The most common attempt is to prepare summary reports of research findings for teachers and educators and suggest that these findings "guide" them in their educational efforts. This is the tactic taken by most textbooks in educational psychology, for example. Does the tactic work? It is virturally impossible to answer this question directly; I know of no evidence that bears systematically on it. I do, however, know many discontented teachers who feel that their exposure to basic research has given them little they can really use in their work with children.

On the other hand, it is not hard to point to extensive influence on educational practice that derives from direct attempts by those close to basic research to build curricula informed by that research. Probably the most striking example, although one rarely remembered these days, is the work of Edward Lee Thorndike early in this century. Thorndike proposed a general theory of education derived from his laboratory work on conditioning, learning, and problem-solving. But he did more. He explored the application of that theory to a specific area of the curriculum--arithmetic--and even went so far as to write a set of elementary school textbooks. These textbooks, and the analyses of arithmetic that underlay them, have had extensive influence on the teaching of arithmetic in the schools. For several decades after Thorndike's original work, other researchers refined the specific sequences of arithmetic instruction and practice that

Thorndike had proposed, and this research became the basis for various updatings of widely used textbook series. Probably as a result of these very practical contributions, Thorndike's theory of practice as the route to establishing well-learned bonds survives as a major influence in our thinking about arithmetic instruction even today--despite the fact that our language for discussing the phenomenon has changed and associationist theories of learning are markedly out of style in psychology. An example of such influence appears in the work of Suppes on computer-assisted instruction in mathematics (see Suppes, Jerman & Brian, 1968).

Consider by contrast another distinguished psychologist, whose work appears to have deep relevance to education, but who has not become involved directly in instructional or curriculum concerns. I am speaking of Jean Piaget. Apart from some very general principles, such as activity-based teaching and respect for general developmental level, Piaget does not suggest what educators ought to do. Teachers who read the score or more of books on Piaget and education are given little to guide practical educational activities. For such guidance, more is needed than the knowledge that children pass through stages of cognitive development in predictable ways, that full understanding comes only when the structural principles of a concept are appreciated, and that structural understanding depends upon learner-initiated actions, not simply rehearsal of things presented by a teacher. I have spent considerable time in the past several years considering the specific implications of Piaget's work for curriculum, and reading the work of

those who have spent even more time on this venture than I. The most helpful are the works by people who have attempted to design actual curricula that they believe instantiate Piagetian principles (e.g., Kamii & De Vries, 1976, for the preschool; Furth & Wachs, 1974, for the primary grades; Lovell, 1971, & Dienes, 1966, for the mathematics curriculum). It is not always clear which of the various proposals for Piaget-based educational programs really represent a faithful understanding of Piaget's theory; yet at least these efforts have a chance of influencing school reforms because they are concrete, they suggest what should actually be done in school, and they explain why. One example of such influence can be seen in the various structural mathematics curricula that have quite radically changed instructional practice and content in elementary school mathematics, especially in informal primary schools in Britain.

I have been arguing that curriculum is a way of instantiating theories and research findings concerning instruction, and thus helping these more theoretical developments to have practical impact on education. This is a form of influence that runs from theory to practice. But practice can influence theory as well. The existence of a systematically planned and documented curriculum provides the occasion for research on education that is likely to yield practical and useable knowledge in reasonable periods of time. The early Thorndike arithmetics are no longer in use in their original form. Yet Thorndike's curriculum set the stage for a study of arithmetic learning

informed by a systematic theoretical position, but responsive to practicalities of the schools. The same is possible for Dienes' math lessons or Kamii's preschool curriculum. They are unlikely to be in use in their current form in fifteen years, but many other programs may have been influenced by them.

In a more self-conscious and deliberate attempt to use curriculum as the tool for scientifically based educational change, some research and development groups have developed extensive research programs around their own and others' curriculum products. My own institution, the Learning Research and Development Center, is one of these. We have developed curricula in several elementary school subjects. In each case, curriculum development has been based explicitly on research findings and careful statements of theory (see, for example, Champagne & Klopfer, 1974; Resnick & Beck, 1976; Resnick, Wang & Rosner, in press). We have also studied the curricula, partly to make them as good as possible (formative evaluation), partly to see how well they do the job they are supposed to do (summative evaluation) and partly to understand ever more deeply how children learn school subject matter (basic research). In this iterative and incremental approach to scientifically based educational reform, curriculum, broadly defined, lies at the core. Curriculum developers not only translate theory into practice but force the theoreticians toward basic research that bears on practical questions. My colleague Audrey

Champagne has elaborated on this linking function of curriculum in response to early reports of the Curriculum Development Task Force (Champagne, 1976).

Natural conservatism in education

I have suggested that without federal involvement in curriculum, conservation rather than reform is likely to prevail. This requires some comment. The most important source of curriculum at the present time is the commercial publisher; with rare exceptions the instructional materials used in our schools are selected from those available from commercial publishers. The most that local educators and agencies can do is attempt to select from the available offerings a "best match" to their own goals and student characteristics. Most often, this selection is less than systematic, because goals and student needs have been specified in only general ways and because there isn't always much in the way of choice. There are many textbooks and curriculum series on the market, but the variability among them is often surprisingly small. Why should this be the case? Because publishers have found it hard to sell curriculum materials that vary widely from the dominant in terms of content or mode of presentation. Schools and school systems apparently want new texts every few years, but most of them don't want very different ones. In part this is a matter of cost; in part it is a function of preference for the familiar. Schools must feel substantially

dissatisfied with some aspect of their program before they will go to the effort of gearing up for implementation of a radically new curriculum--new in either content or demands on social organization of the classroom and school. A few schools or school systems may want something quite different, but they will have difficulty finding it, because when only a few want something commercial publishers will be reluctant to support new development efforts. Thus, dependence upon commercial publishers as the <u>developers</u> of curriculum and instructional materials is likely to lead to more of the same. It is only if we are satisfied with the same that the federal government can afford to stay out of curriculum.

What about locally produced curriculum? An occasional teacher or school or school system, having defined its goals and needs and found them ill-matched by the commercial smorgasbord, will attempt to develop its own curricula. Efforts of this kind are often very exciting, both to those directly involved and to those who observe and occasionally consult with the teachers doing the development. The teachers and other local educators are deeply involved, they invest vast amounts of time, and they use what they have produced with an enthusiasm that can rarely help being communicated to the children. But these efforts--even the best of them--rarely last. Energy runs out, and, frequently, recognition of the scope of the task overwhelms the meager resources in time, varieties of expertise, and

materials that are available. In addition, many local curriculum efforts lack deep enough subject-matter expertise to make significant changes in the content of what is taught and so perpetuate variations of what has already been done for some time; and they often lack the impetus and the necessary sense of support for reorganizing instruction in ways that might change patterns of time allocation, instructional resource allocation, control over students and the like. Most local efforts, unless they can become embedded in a larger network offering support and colleagueship will probably remain conservative rather than reformist in thrust. Thus, while curriculum development efforts may begin locally, they are likely to need outside (federal) help if they are to last and to be real sources of educational improvement.

Setting Priorities in Curriculum

When a public agency such as NIE sets out to establish its priorities in a domain such as curriculum there are two fundamental kinds of information that must be considered. These are (1) the need for certain kinds of curriculum products, as perceived by various constituencies; and (2) the current state of knowledge and development in a domain--i.e., what it seems possible to accomplish. These two bases for decision-making and priority setting develop largely independent of one another. It is the policy maker's task to consider

them jointly, and thus to propose a program that is likely to succeed in meeting important social demands on the basis of as strong a knowledge base as possible.

In the public sector, defining "need" is inevitably only a partly rational process. Although elaborate methods for "needs assessment" in education have often been proposed, most such proposals are probably too rational in their assumptions. They ignore the often competing perceptions of diverse constituencies. Inevitably there is no perfect match between the needs assessments of teachers and administrators, of parents and community groups, of the research community. Yet public policy decisions require that some kind of consensus, or at least mutual acceptance of competing positions, be reached. I have no special wisdom or experience to bring to bear on the question of how these competing demands are to be evaluated. I can, however, suggest some of the ways in which current knowledge and practice influence--or ought to influence--priority setting if we are to make best use of limited resources.

For heuristic purposes, four possible states of knowledge and educational practice can be identified. These are:

State A: Good Curricula in Existence. In this condition there

exist curriculum products of good quality that are ready for use. If adequate implementation and dissemination also exist, there is no problem, and the domain identified is probably not one in which federal intervention is required. If, however, good methods of implementation dissemination are not available, investment in these matters should become a priority.

State B: Instructional Practices and Knowledge Available. In this condition, there are available tested instructional practices, and a generally adequate body of knowledge about how teaching should proceed. Under these conditions, investment in a form of development that makes heavy use of existing practices and, where possible, existing instructional materials would be appropriate. The focus would be, then, on developing organized programs, using existing curriculum components. State B establishes priorities that combine development and implementation/dissemination concerns. There is in this state relatively little need for model programs or tightly controlled experimental classrooms, and much more for work "in the field."

State C: Strong Knowledge Base Available. This is a condition in which a good theoretical and empirical knowledge base for instructional design exists (see Glaser, 1976 & Resnick, 1976 for discussions of the kind of knowledge base required), but little in the way of tested instructional practice. In this situation,

investment in small-scale curriculum development activity appears to be called for. Where an adequate theory exists, it is possible to develop prototype, and perhaps modular, curricula. These should be intensively studied under relatively controlled classroom conditions, but it is not appropriate that extensive attention be paid at this point to problems of wide-scale implementation or dissemination.

State D: Knowledge Base Under Development. This is a condition in which instructional practice is weak, and a well organized body of knowledge on which to build instructional practice doesn't exist either. There is, however, a good likelihood, given current research trends, that such an organized body of knowledge could become available within some reasonable period. Under these conditions, investment in basic research is called for, with the proviso that eventual applicability to instruction guide and inform this research.

This general scheme provides a framework for considering various curriculum priorities. To illustrate, I will discuss three curriculum domains that are commonly agreed to constitute a major "core" of the elementary and middle school program. I make no attempt in this discussion to be exhaustive, intending rather to be illustrative and at the same time to expose as many as possible of the kinds of research and development activity that the present confluence of needs and knowledge might render fruitful.

Toward universal competence in basic skills

There seems to be something close to a consensus among educators,

the general public, and the research and development community that whatever else the educational system does, it ought to assure basic skill proficiency for all Americans. There is, of course, less consensus on exactly what we mean by basic skills. Allow me nevertheless to take as a working definition, useful for the moment and for the purpose of discussion, the achievement of at least eighth grade levels of proficiency in reading and mathematics. I recognize the difficulty of using a normative and comparative definition of proficiency--"eighth grade level"--rather than an absolute one; but I think the term is precise enough for purposes of discussion here, if not for actual research and development work, and it is increasingly used in educational policy discussions.

Let us consider where in the knowledge continuum of Figure 1 we fall for each of the basic skill areas and what is implied for policy priorities. I begin with a consideration of reading, and for this purpose make a distinction between initial reading and what is often called, for lack of a better phrase, reading comprehension. Initial reading can be defined institutionally as what is taught in grades 1-3, assuming that children are proceeding at expected rates. Reading comprehension is everything that is taught (or learned) after that. More precisely, many would agree that initial reading is concerned centrally with learning to break the code, with transforming print into sound. Comprehension is making sense out of the text once it is

decoded. These two aspects of reading skill are not really separate, either in acquisition or in ultimate performance, but considering them separately is a useful way of looking at the reading problem in the present context. The distinction is particularly important because these two aspects of reading are at quite different places on the continuum of knowledge states just presented. I will, therefore, discuss early reading and reading comprehension separately.

Early reading. A general case can be made that for early reading we are somewhere in the region of states A and B. There are a large number of beginning reading programs available that correspond, at least roughly, to well-developed theories of reading performance and instruction (see Resnick and Weaver, in press, for a sampling and discussion of a variety of early reading programs). Furthermore, for many of these programs, there is evidence that under favorable conditions of implementation the programs are successful in teaching. Most children become proficient in the skills expected. Why, then, do we still have an early reading problem? Two possibilities exist, both probably contributory.

First, there are certain subgroups in the population for whom the presently available reading programs are not adequate or appropriate. These probably include many of the groups we have come to label "compensatory populations" and also an even more loosely defined group that has come recently to be called "learning disabled."

For these groups, at least according to most commentators with whom I am familiar, our state of knowledge is at level D, or at most C. Thus, the appropriate form of investment in curriculum for ethnic minorities and special learning populations is, according to this analysis, small-scale development effort, closely tied to research, both evaluative and theoretical in nature. From a strictly rational point of view, investment in larger scale curriculum development (as at B) is premature, and there is little to disseminate or implement (as at A) at this time. Of course, political pressures might mitigate against intensive and prototypical efforts, pressing NIE toward larger scale field involvement than current knowledge now justifies. It is my strong opinion that the Institute needs to resist pressures of this kind--not by simply rejecting their validity but by exploring with appropriate constituencies the planning criteria and substantive alternatives under consideration. This kind of consultative planning is essential if NIE is to function as an agency for scientific improvement in education.

A second reason we continue to have an early reading problem in the country is that the curricula that are available are not as widely used as they might be, and when used are often poorly implemented. This points to an implementation, and possibly a dissemination problem (state A). Should the federal government be involved in such issues? Assuredly yes, unless it wants to turn away from an entire

class of educational needs. Teaching materials are not in themselves curricula--if we mean by curricula everything necessary to foster learning. A commitment to achievement of basic skill proficiency by all children requires a commitment to instruction at many different levels and in response to many different characteristics of learners. These multiple forms of instruction will need to go on more or less simultaneously within a school, unless we are to turn to rather strict patterns of homogeneous grouping between as well as within schools. Adapting instruction to multiple differences among children can take many forms, and many plans for such adaptation have been proposed and studied. These proposals almost always involve substantial redesign of the social matrix within which instruction takes place. Time is allocated differently for both teacher and child; the self-contained classroom may have to be abandoned; children may have to take substantially more responsibility for judging their own performance and planning their own time; standards of proper conduct often change as children move around more freely in connection with their work, and so forth. These kinds of changes are much more complex than adoption of a new text series. But they are changes central to curriculum when curriculum is defined with respect to learning goals, and must be considered part of any curriculum effort aimed at reform in educational practice and improvement in educational outcome. The changes in learning environments that are implied by these considera-

tions may need to be explored first in intensive local implementations (as at stage C). Eventually the important question will be how instructional management systems that are widely implementable can be designed (the task of stage B) and of how schools can be helped to undertake these very demanding reforms (as at stage A).

Reading fluency and comprehension. The state of knowledge with respect to reading comprehension contrasts markedly with what I have just described for early reading. Hardly anyone would argue that we are at State A with respect to comprehension, or even that we are at B. It is difficult even to define what reading comprehension is, and current theories are either so general as to provide little guidance for instructional design or so narrowly specific as to barely tackle the educational problem. In the absence of guiding theory, extensive new investment in curriculum development for comprehension is unlikely to be effective. On the other hand, emerging trends in information processing psychology and the enormous growth of research on language comprehension in the past several years place us quite squarely in State D. Thus, if my analysis is correct, the most favorable form of investment with respect to reading comprehension is, for the moment, basic research. A correlated kind of research that includes highly controlled instructional experimentation, at first in the laboratory and then gradually moving into controlled classroom settings (as in state C) should probably be seen as an integral part of this research.

This form of semi-applied research should, if carried out in active contact with fundamental theoretical work, also help to maximize the likelihood that questions will be formulated by basic researchers in ways likely to provide insight into instructional concerns.

Mathematics. This area is perhaps the hardest to characterize with respect to the knowledge states described earlier. This is because, relative to reading, there is little agreement on what the goals of mathematics instruction ought to be. If we accept computational proficiency, together with a modicum of verbal comprehension such as is now measured in our standardized mathematics tests, as the goal, then the necessary instructional materials exist in adequate quantity, and activities similar to those described for early reading should demand our greatest attention. On the other hand, if deeper conceptual understanding and competence in a wider range of topics within mathematics is a goal--as it certainly is for many mathematics educators and for some teachers, administrators and parents--then only fragments of instructional materials exist and we are at best at state C. Here is a case where, quite clearly, some fundamental decisions on goals will have to be addressed before decisions about appropriate priorities for federal involvement can be made. It is also a case that illustrates a form of tension that can often arise between the research and development community and the "consumers" of educational R & D--parents and schoolpeople. Most people engaged in

mathematics curriculum development and research feel that there is probably too little, rather than too much, emphasis on the conceptual bases of mathematics. Yet the current demand of most communities is for a return to "the basics," apparently meaning greater emphasis on computational skill. Which definition of need ought NIE to follow? To ignore the demands for more effective computation competence would be to ignore the needs assessment of an important public constituency. To follow those demands slavishly would be to renounce any claim to providing leadership in educational reform. The decisions to be made in mathematics curriculum are, thus, even more complex than those facing us in the reading and language area.

Conclusion: Goal-oriented priority setting

The preceding discussion has been intended to illustrate the many forms of curriculum-related activity that may be appropriate depending upon social definitions of need and assessments of current knowledge and practice in education. An attempt to prescribe one form of curriculum involvement would inevitably be to ignore other current needs, and, more important, to set a policy course for NIE that is incapable of responding to changes either in the educational climate or in the state of knowledge relevant to education. I have proposed instead a way of examining current practice and knowledge in domains identified as important to the national educational effort. The general framework should be viewed as a set of questions to be

considered once an educational goal has been at least broadly identified. Goals can be clarified and refined in the course of attempting to evaluate where we stand on the continuum of knowledge and practice. The entire process can, if employed in an iterative and consultative manner, provide a goal-oriented, yet flexible and responsive approach to determining federal priorities in curriculum.

References

Champagne, A.B. & Klopfer, L.E. An individualized elementary school science program. Theory into Practice, 1974, 13(2), 136-148.

Champagne, A.B. Current issues related to federal funding of curriculum development. Unpublished manuscript, Learning Research and Development Center, University of Pittsburgh, 1976.

Dienes, Z.P. Mathematics in the primary school. London: Macmillan & Co., 1966.

Furth, H.G. & Wachs, H. Piaget's theory into practice--Thinking goes to school. New York: Oxford University Press, 1974.

Glaser, R. Components of a psychology of instruction: Toward a science of design. Review of Educational Research, 1976, 46, 1-24.

Kamii, C. & De Vries, R. Piaget for early education. In M.C. Day & R.K. Parker (Eds.) The preschool in action.

Lovell, Kenneth. The growth of understanding in mathematics. Kindergarten through grade three. New York: Holt, Rinehart & Winston, 1971.

Resnick, L.B. The science and art of curriculum design. In J. Schaffarzick & D.H. Hampson (Eds.), Strategies for curriculum development. Berkeley: McCutchan Publishing Corporation, 1975.

Resnick, L.B. & Beck, I.L. Designing instruction in reading: Interaction of theory and practice. In J.T. Guthrie (Ed.), Aspects of reading acquisition. Baltimore: The Johns Hopkins University Press, 1976.

Resnick, L.B., Wang, M.C. & Rosner, J. Adaptive education for young children: The Primary Education Project. In M.C. Day & R.K. Parker (Eds.), The preschool in action: exploring early childhood programs. Boston: Allyn & Bacon, 1976.

Resnick, L.B. & Weaver, P. (Eds.), Theory and practice of early reading. Hillsdale, N.J.: Lawrence Erlbaum Associates, in press.

Suppes, P., Jerman, M. & Brian, D. Computer-assisted instruction: Stanford 1965-66 arithmetic program. New York: Academic Press, 1968.